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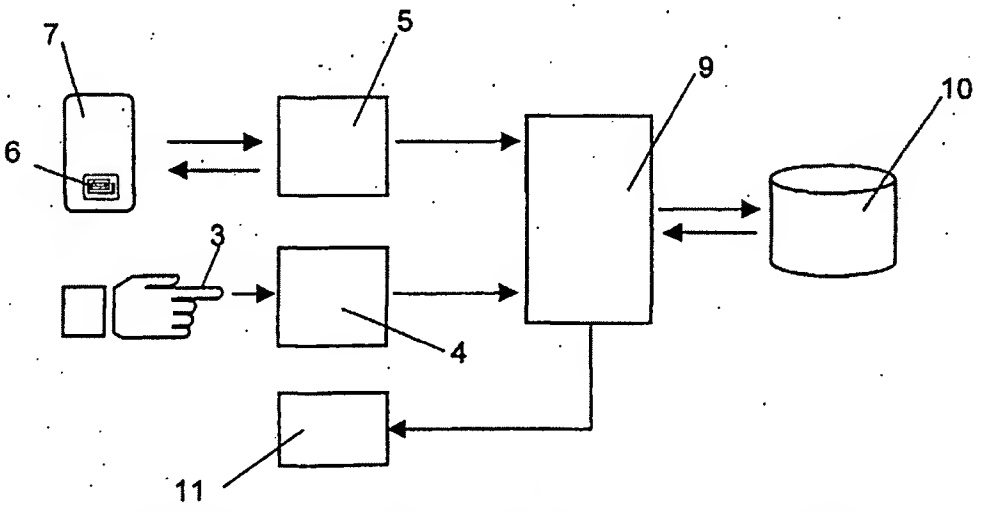
(54) Title: AN ARRANGEMENT AND A METHOD FOR CHECKING THE IDENTITY OF A PERSON



(57) Abstract: The present invention relates to an arrangement and a method for checking the identity of a person (1). The arrangement comprises a first reader (5) arranged to read an RFID-code from an RFID-circuit (6), which is arranged to be carried by the person (1). The arrangement comprises also a second reader (4) arranged to read one body related characteristic of the person (1), which characteristic is unique for individuals, and a check unit (9) arranged to compare if said read data corresponds to stored check data.

WO 01/72224 A1

An arrangement and a method for checking the identity of a person

BACKGROUND OF THE INVENTION AND PRIOR ART

The present invention relates to an arrangement and a method for checking the identity of a person, wherein the arrangement comprises a first reader arranged to read an RFID-code from an RFID-circuit which is arranged to be carried by the person.

Different kinds of arrangements and methods are known for checking the identity of a person. Usually, the identity and authority of a person is checked when the person wishes access to some kind of service. Such services may be to withdraw money from an account in a bank or via a cash dispenser, to pay with a credit card, to obtain access to certain places and events or to allow log-ins and connections in relation to the use of computers. Usually, a combination of different identification methods is used for confirming the identity of a person with a high security. Such identification methods may comprise that the person in question shows an ID card and writes his signature, shows a credit card and writes a PIN-code on a keyboard or shows an identity document and states a password. A photo of an identity card or a passport is also many times checked for confirming the identity of the person. In connection with an identity check, it may be required by the person that he takes out and shows a card relevant in the context, remembers a PIN-code and enters it correctly on a keyboard or has a writing member ready to hand to be able to write his signature on the right place in a verification etc. Known arrangements and methods for checking the identity of a person are often to a certain inconvenience for the person in question.

Devices for identifying persons by means of fingerprints are known. Such devices provide a relatively safe identification of a person. However, it is possible to make an imprint of the fingerprint of an authorised person, which later may be used for duping a fingerprint-sensing device.

Wireless radio frequency identification RFID (Radio Frequency Identification) is used in different contexts, for example, for identifying cattle, verifying authority to use ski lifts and toll roads and for making identification and timekeeping of separate individuals possible in sporting events with many participants. The identification object is equipped with a microchip, which comprises an RFID-circuit. When the identification object passes an RFID-reader, the RFID-circuit is activated and transmits an identification signal in form of a unique RFID-code to the RFID-reader.

SUMMARY OF THE INVENTION

The object of the present invention is to provide an arrangement and a method, which significantly simplifies the checking of the identity of a person in different contexts. Other objects are to increase the security at such a checking and that the check should be able to be performed quicker than by known technique.

This object is achieved by the arrangement of the initially mentioned kind which is characterised in that it also comprises a second reader arranged to read one body related characteristic of the person, which characteristic is unique for individuals, and a check unit arranged to compare if said read data correspond to stored check data. A first reader, which is arranged to read an RFID-code from an RFID-circuit carried by the person, may be performed such that the person only needs to be located within a herefore intended area in order for the RFID-reader to be able

to receive the RFID-code. A second reader, which reads one body related characteristic which is unique for individuals, may also be performed such that the person in question only needs to be located in a specific position in order for the body related characteristic to be able to be read. The reading by the first and second reader is performed by a machine and may be performed very quickly, after that the person has placed himself in a position suitable for reading. Each of the first and second readers provides by itself a relatively safe data for identification of the person in question but a combination of said data increases the security considerably. The read data are compared with stored check data. Both of the read data have to agree with corresponding stored check data in order for the identity of the person to be considered to be verified.

According to another preferred embodiment of the invention, said body related characteristic is the fingerprint of the person. To read the fingerprint of a person is in itself a very safe identification method. The method is also very simple since the person in question only needs to put a fingertip on a surface intended therefore of the second reader. Hereby, the second reader is activated and reads the fingerprint of the person. In connection with the fact that the second reader is activated, the first reader is with advantage automatically activated. Advantageously, the first reader is provided near the second reader. When the second reader reads the fingerprint of the person, the person is located within the area in which the first reader allows reading of the unique RFID-code from the RFID-circuit carried by the person in question. Said data related to the fingerprint and the RFID-code of the person are thereafter compared with corresponding stored check data. Alternative unique body related characteristics for individuals to fingerprints may be other body parts, which have a unique appearance for different individuals. Such body parts may be, for example, certain parts of the eyes of a person. The voice of a person is

also a body-related characteristic, which is unique for individuals.

According to another preferred embodiment of the present invention, said RFID-circuit is contained in a microchip. Such a microchip may in a simple way be arranged at different kinds of objects normally carried by a person or at the body of the person. The microchip may hereby be comprised in cards of different kinds, such as credit cards. The microchip may also be comprised in a cellular telephone, a watch, a passport, a portable computer etc. Since the communication, via the first reader and the RFID-circuit in the microchip, is performed by radio waves, the object with the microchip does not need to be taken out during the identification process. The person in question may thus let the object with the microchip remain in, for example, a pocket or a bag during the identification process.

According to another preferred embodiment of the present invention, said read data are arranged to be transmitted to a check unit comprising a computer device, for example, in form of a server. Such a server may thereby comprise suitable software for treatment of the transmitted read data and compare these with the stored check data. The server may get said check data from a data base. The data base comprises data about RFID-codes and fingerprints and which RFID-code belongs to a certain fingerprint.

According to another preferred embodiment of the present invention, the check unit is arranged to activate a monitoring member in order to inform if the read data correspond to the check data. Hereby, a green lamp, for example, may be lightened if the read data correspond to the stored check data and a red lamp if they do not agree. Thereby, the identified person as well as a possible control person will thereby be quickly informed whether the read data agree with the stored check data. If the read data correspond to the stored check

data, the control person may allow the identified person access to some kind of service, since the arrangement with advantage is arranged to check the identity of a person in order to check the authority of the person to a service. Such services may be withdrawal of money from an account, payment with a credit card, access to certain areas or events. The check unit may be arranged to automatically allow the person access to said service if the read data correspond to the stored check data for a person authorised to the service. Hereby, no control person is needed and the check unit may automatically allow access to services such as withdrawal of money from a cash dispenser or opening of a gate allowing access to a special area or log-ins and connections in relation with the use of computers.

The invention also relates to a method for checking the identity of a person according to any of the above-described embodiments of the arrangement.

BRIEF DESCRIPTION OF THE DRAWING

In the following a preferred embodiment of the invention is described as an example with reference to the attached drawing, in which:

Fig 1 shows an application of the present invention in a cash dispenser,

Fig 2 shows schematically an embodiment of an arrangement according to the present invention.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

Fig 1 shows a person 1, which intends to withdraw money from a cash dispenser 2. In order for the person 1 to be allowed to withdraw money from the cash dispenser 2, the identity of the person 1 first has to be checked. This means at the withdrawal

from a conventional cash dispenser, that the person 1 initially inputs a card intended herefore in the cash dispenser. Thereafter, the person 1 enters a unique PIN code on a keyboard of the cash dispenser 2. Consequently, in order for the identity of the person to be able to be checked and verified, the person 1 thus has to take out and input the card as well as to remember a PIN code and enter it correctly on the keyboard of the cash dispenser. It may be a problem for many people to remember a numerical code. Therefore, it is common that many persons write their code on a paper or the like which they carry with them. In connection with a possible theft, both the card and the paper with the noted code risk to be stolen.

The cash dispenser showed in Fig 1 has been modified with an arrangement according to the present invention. The arrangement is showed schematically in Fig 2. In order to withdraw money from the modified cash dispenser 2, the person 1 initially places a finger 3 such that the fingertip of the finger 3 come into contact with a surface, which forms a part of a fingerprint reader 4. The fingerprint reader 4 senses that the finger 3 is in contact with said surface and is activated. The fingerprint reader performs a reading of the fingerprint of the person 1. The cash dispenser 2 also comprises an RFID-reader 5 which is arranged to be activated at the same time as the fingerprint reader 4 or after that the fingerprint reader 4 has obtained an acceptable reading of the fingerprint of the person 1. The RFID-reader 5 is provided so near the fingerprint reader 4 that the person 1 during the fingerprint reading is located within an area, which contains the range of the RFID-reader 5. The RFID-reader 5 reads an RFID-code from an RFID-circuit 6 which is arranged to be carried by the person 1. The RFID-circuit 6 is comprised in a card 7. The communication between the RFID-reader 5 and the RFID-circuit 6 is performed by radio waves. Since the radio waves penetrate through solid material, the person 1 does not need to take out the card 7 for allowing a

reading of the RFID-code. The person 1 may keep the card 7 in, for example, a pocket or in a carried bag 8.

The read data related to fingerprint and RFID-code are transmitted to a computer device in the form of a server 9. The server 9 comprises suitable software for receiving the read data and comparing this with corresponding stored check data in a data base 10. The data base 10 contains data about RFID-codes and fingerprints of authorised persons. When the check is finished, the server 9 activates a monitoring member 10, which informs the person 1 whether the read data correspond to the check data. If the data correspond, the server 9 allows an automatic further connection such that the person 1 may state the amount, which it is desired to withdraw from the cash dispenser 2. Thereafter, the desired amount is fed from the cash dispenser 2. The withdrawn amount is debited the account of the person 1.

For persons 1 intended to use services, which are associated with a check of the identity of the person, the identification process is considerably simplified with the present invention in relation to known technique. The person only needs to place a finger 3 on a surface of a fingerprint reader 4. Thereafter the identification process continues automatically. By both reading an RFID-code and a fingerprint, a very safe check of the identity of the person is obtained. Since the identification process comprises only one manual operation, namely that the person 1 places a finger 3 on intended place of the fingerprint reader, the identification process may be performed very quickly. Above all, the person does not need to remember a PIN code, which also has to be entered entirely correctly on a keyboard in order for the person to obtain access to the desired service.

The present invention is in no way limited to the above shown embodiment but may be varied freely within the scope of the claims. For example, the arrangement showed in Fig 2 may be

used at a number of different occasions when a safe and quick check of the identity of a person 1 is required. Such occasions may be in relation to payments, passages, log-ins etc. Consequently, the arrangement and the method for checking the identity of a person may be used in most contexts where a check with a very high security is required.

Claims

1. An arrangement for checking the identity of a person (1), wherein the arrangement comprises a first reader (5) arranged to read an RFID-code from an RFID-circuit (6) which is arranged to be carried by the person (1), characterised in that the arrangement also comprises a second reader (4) arranged to read one body related characteristic of the person, which characteristic is unique for individuals, and a check unit (9) arranged to compare if said read data correspond to stored check data.

2. An arrangement according to claim 1, characterised in that said body related characteristic is the fingerprint of the person (1).

3. An arrangement according to any one of the preceding claims, characterised in that said RFID-circiut (6) is comprised in a microchip.

4. An arrangement according to claim 5, characterised in that said microchip is comprised in a card (7).

5. An arrangement according to any one of the preceding claims characterised in that said read data are arranged to be transmitted to a check unit comprising a computer device (9).

6. An arrangement according to claim 5, characterised in that said check data are stored in a data base (10).

7. An arrangement according to any one of the preceding claims, characterised in that the check unit (9) is arranged to activate a monitoring member (11) in order to inform if the read data correspond to the check data.

8. An arrangement according to any one of the preceding claims, characterised in that the arrangement is arranged to check the identity of a person (1) in order to check the authority of the person (1) to a service.

9. An arrangement according to claim 8, characterised in that the check unit (9) is arranged to allow the person (1) access to said service if read data correspond to stored check data for a person authorised to the service.

10. A method for checking the identity of a person (1), characterised in that a first reader (5) reads an RFID-code from an RFID-circuit (6) arranged to be carried by the person (1), that a second reader (4) reads one body related characteristic of the person (1), which characteristic is unique for individuals, and that a check unit (9) checks if said read data correspond to stored check data.

11. A method according to claim 10, characterised in that said second reader (4) reads a fingerprint of the person.

12. A method according to claim 10 or 11, characterised in that the check unit (9) activates a monitoring member (11) to inform if the received data correspond to said check data.

13. A method according to any one of the preceding claims, characterised by checking the identity of a person (1) in order to check the authority of the person (1) to a service.

14. A method according to any one of the preceding claims 13, characterised in that the check unit (9) allows the person (1) access to said service if read data correspond to said check data.

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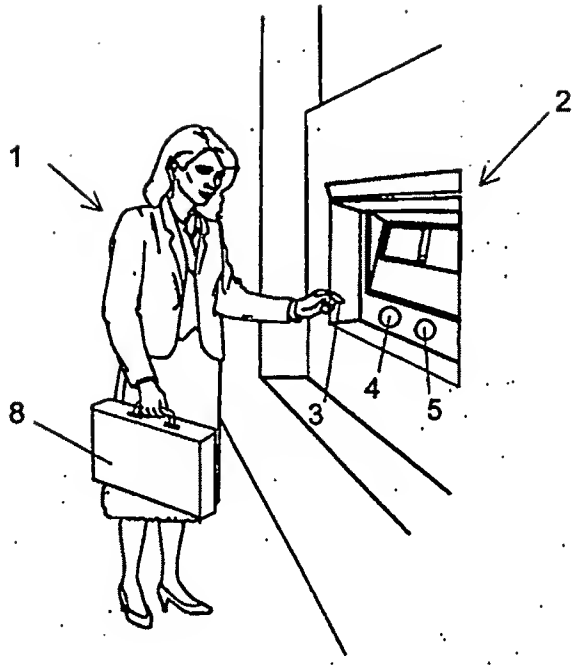

Fig 1

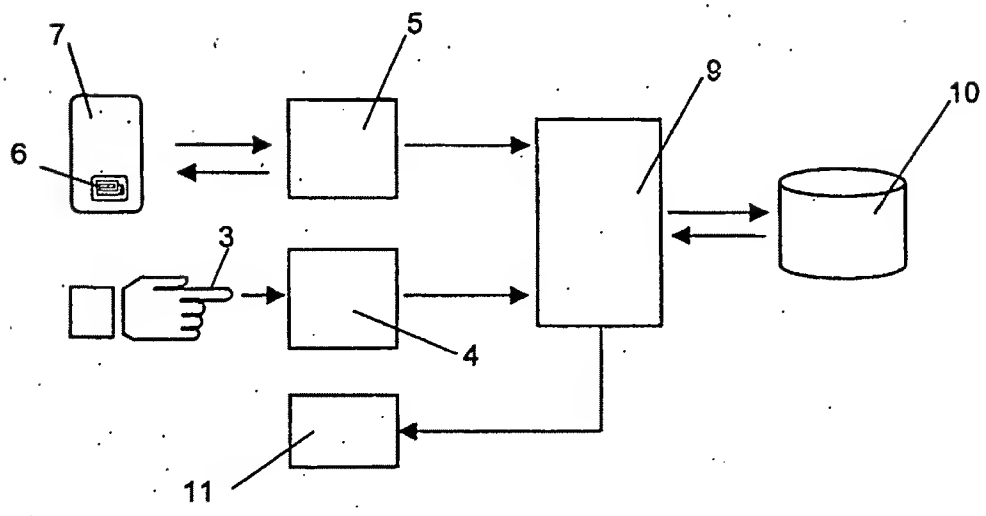

Fig 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 01/00638

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A61B 5/117, G06K 9/62
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A61B, G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CA 2142227 A1 (INFOTAG SYSTEMS INC.), 11 August 1996 (11.08.96), page 7, line 20 - page 11, line 7	1-14
A	WO 9936798 A2 (TECSEC, INCORPORATED), 22 July 1999 (22.07.99), page 2, line 1 - line 20; page 3, line 25 - page 4, line 27	1-14
A	US 5509083 A (NOORAL S. ABTAHI ET AL.), 16 April 1996 (16.04.96), column 6, line 1 - line 53; column 8, line 31 - column 9, line 11, abstract	1-14

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

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"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
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Date of the actual completion of the international search	Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 01/00638

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5598474 A (NELDON P. JOHNSON), 28 January 1997 (28.01.97), column 5, line 52 - column 6, line 61	1-14

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INTERNATIONAL SEARCH REPORT

Information on patent family members

02/08/01

International application No.
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CA 2142227 A1	11/08/96	NONE	
WO 9936798 A2	22/07/99	AP 200001862 D	00/00/00
		AU 2227699 A	02/08/99
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US 5509083 A	16/04/96	NONE	
US 5598474 A	28/01/97	AU 693655 B	02/07/98
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